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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,151

09/27/2005

Yusuke Toyoda

14225.15USWO

5255

52835

7590

11/20/2009

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MINNEAPOLIS, MN 55402-0902

EXAMINER

SHEVIN, MARK L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

11/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,151	Applicant(s) TOYODA ET AL.	
	Examiner MARK L. SHEVIN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 is/are allowed.
- 6) ☐ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-3 and 5-12, filed February 10th, 2009, are currently under examination. No claims have been changed compared to those examined in the previous office action, mailed April 7th, 2009.

Status of Previous Rejections

2. The previous rejections of claims 1, 2, 6, and 8 under 35 U.S.C. 103(a) over **Winkler** (EP 918095 A1) in the Office action dated April 7th, 2009 have been maintained.

3. The previous rejections of claims 1-3 and 5-9 under 35 U.S.C. 103(a) over **Spanjers** (US 2002/0006352 A1) in the Office action dated April 7th, 2009 have been maintained.

4. The previous rejections of claims 1, 2, 6, and 8, under 35 U.S.C. 103(a) over **Nishi** (US 4,847,048 A1) in the Office action dated April 7th, 2009 have been maintained while the rejections of 10-12 have been withdrawn in view of Applicants' remarks at p. 4, para 4 to p. 5, para 6.

5. The previous rejections of claims 1, 2, 6, 8, and 10-12 under 35 U.S.C. 103(a) over **Jin** (JP 01-068440 - Full Human Translation) in the Office action dated April 7th, 2009 have been withdrawn in view of the affidavit under 37 C.F.R 1.132, filed August 7th, 2009 and signed by Mr. Yusuke Toyoda.

6. The previous rejection of claim 2 under 35 U.S.C. 103(a) over any of **Winkler**, **Spanjers**, or **Nishi** in further view of **Komizaki** (US 2002/0141896) in the Office action dated April 7th, 2009 has been maintained.

7. The previous rejections of claims 3, 5, 7, and 9 under 35 U.S.C. 103(a) over any of **Winkler**, or **Nishi** in further view of **Spanjers** (US 2002/0006352 A1) in the Office action dated April 7th, 2009 have been maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. **Claims 1, 2, 6, and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Winkler** (EP 918095 A1).

Winkler:

Winkler discloses a die-cast aluminum alloy with alloying additions that overlap each and every claimed range in instant claim 1 as shown in the table below (Abstract):

Element	Winkler	Instant Claim 1	Overlap
Mg	0 – 5	3.5 – 4.5	3.5 – 4.5
Mn	0.1 – 1.6	0.8 – 1.5	0.8 – 1.5
Si	0 – 0.5	0 – 0.5	0 - 0.5
Fe	0 – 1.0	0 – 0.5	0 – 0.5
Ti	0 – 0.3	0.2 <	0.2 – 0.3
Zr	0.1 – 0.4	0.3 <	0.3 – 0.4

Ti+Zr	0.1 – 0.7	Ti+Zr > 0.3	0.3 – 0.7
Al	Balance	Balance	Balance

Regarding claims 1, 6, and 8 from MPEP 2144.05, para. 1: In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

While Winkler does not teach a specific sum or ratio of titanium to zirconium, it would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, taking the disclosure of Winkler as a whole, to work within the disclosed range of titanium and zirconium to yield an optimal toughness. Put another way, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2145.05 para. II). See *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Malagari* 182 USPQ 549 and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

In addition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357,553 O.G. 177., 57 USPQ 1 17, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949

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C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.* 149 USPQ 685,688. It would have been obvious to one of ordinary skill in the art to select alloy compositions fulfilling the claimed compositional relationships from the alloy compositional ranges disclosed by Winkler.

The presently amended claims 1, 6, and 8 are drawn to an Al-Mg alloy with a composition "consisting essential of" various alloying elements, and does not clearly exclude Sc from said alloy. The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristics" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). For the purposes of searching for and applying art under 36 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., *PPG*, 156 F.3d at 1355, 48 USPQ2d at 1355. Applicants have not shown that the addition of Sc would affect the basic and novel properties of the claimed alloy.

Regarding claim 2, the pouring temperature does not imply any additional structural limitations in this case as it only specifies the liquid temperature which does not specify the final microstructure. See MPEP 2113: "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its

method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

9. Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Spanjers** (US 2002/0006352 A1).

Spanjers teaches an Al-Mg alloy for die casting operations (see also para 0023 and 0024) comprising 2.7-6.0 wt% Mg, 0.4-1.4 wt% Mn, Zn: 0.10 – 1.5, up to 1 wt% Fe, up to 1.4 wt% Si, up to 0.3 wt% Zr, and up to 0.2 wt% Ti (Abstract). Regarding Fe, Spanjers teaches that when higher fracture toughness and/or ductility is desired a suitable maximum for the Fe content is 0.5% (para 0048). Regarding Si, the Si content should be most preferably not more than 0.3 % (para 0049).

Spanjers teaches that his invention also includes die-cast products, particularly high-pressure die-cast products (para 0029). Spanjers produced several test die-cast products including a 200x250x2 mm plate (Example 2, para 0061).

Overall Spanjers teaches Al-Mg alloy products with compositions overlapping the ranges of claims 1 and 4. It is the Examiner's position that Spanjers teaches a high-toughness die-cast product given the substantially overlapping compositions and the high ultimate tensile strengths and elongation percentages show in Table 2 of Spanjers as compared to Table 2 of the instant specification. From MPEP 2144.05, para. 1: In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior

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art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claims 1, 6, and 8, Spanjers does not teach a specific sum or ratio of titanium to zirconium, however:

It would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, taking the disclosure of Spanjers as a whole, to work within the disclosed range of titanium (para 0047) and zirconium (para 0043) to yield an optimal toughness. Put another way, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2145.05 para. II). See *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Malagari* 182 USPQ 549 and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

With respect to the amendment to claims 1, 6, and 8 adding "consisting essentially of" these limitations do not overcome the 103 rejections as although Spanjers requires Zn from 0.10 – 1.5, the instant specification does not disclose that this addition would affect the basic and novel characteristics of the claimed alloy.

Regarding claim 2, the pouring temperature does not imply any additional structural limitations in this case as it only specifies the liquid temperature which does not specify the final microstructure.

Regarding claim 3, the die-cast sheet 200x250x2 mm of Example 2 is an example of a product that establishes a prima facie case of obviousness between Spanjers and the instant claims as explained above.

Regarding claims 5, 7, and 9, Spanjers teaches an Al-Mg alloy that overlaps the composition ranges of claim 1 and his alloy was produced in the form of thin plates of 200x250x2 mm.

It would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, to produce a die-cast aluminum casting with a thickness of 1.2 to 3 mm and a ratio of chill layer thickness to total plate thickness as claimed as Spanjers taught a specific example of a die-cast plate to illustrate castability. Spanjers does not teach a given ratio of chill layers to minimum thickness but the Examiner holds that these chill layer limitations are not patentable over the prior art of record as one of ordinary skill in the art would certainly be able to optimize the thickness of the product and its chill layers in the normal course of initial die-casting and testing to obtain a maximally ductile and tough product as Spanjers teaches that by optimizing the casting parameters, the tensile and elongation properties can be improved (para 0052) and furthermore that the thinner 2 mm plates had more defects than the 4 mm plates (para 0063), thus implicating the thickness of the plates as a condition for optimization.

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Furthermore, one of ordinary skill would reasonable expect substantially the same properties from such a product as in both the instant specification and Spanjers, substantially similar alloys were successfully die-cast in preheated molds to form thin plates with a flow distance of at least 200 mm. One of ordinary skill would know that as the cross-section (thickness) of the desired plate product decreases for a given die-casting operation, the ratio of chill layers to overall thickness will increase and that chill layers will generally have finer grain size and thus higher toughness and elongation properties from basic microstructure – property relationships known in materials science.

10. Claims 1, 2, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishi** (US 4,847,048).

Nishi:

Nishi discloses aluminum die-casting alloys (col. 2, lines 30-38) with a composition as shown in the comparative table below (Abstract and col. 2, lines 40-58):

Element	Instant claim 1	Nishi	Overlap
Mg	3.5 – 4.5	2 - 8	3.5 – 4.5
Mn	0.8 – 1.5	0 - 3	0.8 – 1.5
Si	0 – 0.5	0 – 1.5	0 – 0.5
Fe	0 – 0.5	0 – 0.5	0 – 0.5
Ti	Ti+Zr \geq 0.3	0 – 0.3	0 – 0.3
Zr	Ti+Zr \geq 0.3	0 – 0.3	0 – 0.3

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Al	Balance	Balance	Balance
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Regarding claims 1 and 6, Nishi does not teach a specific sum or ratio of titanium to zirconium, however:

It would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, to work within the disclosed ranges of titanium and zirconium to yield an optimal toughness. Put another way, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. With respect to the amendment to claims 1 and 6 adding “consisting essentially of”, although Nishi requires the addition of Ni, the instant specification does not disclose that this addition would affect the basic and novel characteristics of the claimed alloy.

Regarding claim 2, the pouring temperature does not imply any additional structural limitations in this case as it only specifies the liquid temperature which does not specify the final microstructure.

Regarding claim 8, this claim is rejected for the same reasons as stated for claims 1 and 6 with the additional note from MPEP 2144.05 that:

“Similarly, a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals*

Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

In this case, the claimed range of $Zr > 0.3$ includes Zr concentrations that are any amount above 0.3 wt% including arbitrarily greater amounts such as 0.30001 wt% Zr. One skilled in die-cast aluminum alloy would expect the alloys of Nishi to have the same properties based on the combined content of Ti + Zr overlapping the claimed range, the substantially overlapping ranges of all other alloying elements of Mg, Mn, Si, Fe, and Al, and the teaching by Nishi that his alloy is similarly designed to be "high-toughness" (Nishi, col. 2, lines 35-40 and 60-65).

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of **Winkler, Spanjers, or Nishi** in further view of **Komazaki** (US 2002/0141896).

Regarding claim 2, assuming *arguendo* that the pouring temperature does imply additional structural limitations into claim 2, then as the previously cited prior art does not teach the pouring or casting temperatures that were used to form the die-cast products of his invention, one must resort to a second reference to aid this deficiency.

Komazaki teaches an Al-Mg-Mn alloy with compositions that overlap those of claim 1 (Abstract) and produces die-cast test pieces at a casting temperature of $720 \pm 10^\circ\text{C}$ (para 0025).

Thus it would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, to form a die-cast product in the instantly claimed temperature range as Komazaki taught this temperature for an almost identical Al-Mg-Mn alloy as both instant claim 1 and the alloys of the cited prior art references of Winkler, Spanjers, Jin, or Nishi.

12. Claims 3, 5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of **Winkler or Nishi**, in further view of **Spanjers** (US 2002/0006352 A1).

Winkler, Jin, and Nishi do not teach a die-cast product with chill layers such as the sum of the thickness of the chill layers divided by the minimum thickness is 18% or greater.

Spanjers:

Spanjers teaches an Al-Mg alloy that overlaps the composition ranges of claim 1 and his alloy was produced in the form of thin plates of 200x250x2 mm.

It would have been obvious to one of ordinary skill in aluminum casting, at the time the invention was made, to produce a die-cast aluminum casting with a thickness of 1.2 to 3 mm and a ratio of chill layer thickness to total plate thickness as claimed as Spanjers taught a specific example of a die-cast plate to illustrate castability. Spanjers does not teach a given ratio of chill layers to minimum thickness but the Examiner holds that these chill layer limitations are not patentable over the prior art of record as one of ordinary skill in the art would certainly be able to optimize the thickness of the product and its chill layers in the normal course of initial die-casting and testing to obtain a

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maximally ductile and tough product as Spanjers teaches that by optimizing the casting parameters, the tensile and elongation properties can be improved (para 0052) and furthermore that the thinner 2 mm plates had more defects than the 4 mm plates (para 0063), thus implicating the thickness of the plates as a condition for optimization.

Furthermore, one of ordinary skill would reasonable expect substantially the same properties from such a product as in both the instant specification and Spanjers, substantially similar alloys were successfully die-cast in preheated molds to form thin plates with a flow distance of at least 200 mm. One of ordinary skill would know that as the cross-section (thickness) of the desired plate product decreases for a given die-casting operation, the ratio of chill layers to overall thickness will increase and that chill layers will generally have finer grain size and thus higher toughness and elongation properties from basic microstructure – property relationships known in materials science.

Affidavit Under 37 CFR 1.132

13. The affidavit under 37 CFR 1.132 filed August 8th, 2009 is sufficient to overcome the rejection of claims 1, 2, 6, 8, and 10-12 based upon Jin.

The affidavit provides sufficient evidence to establish that the claimed die-cast product has unexpectedly superior elongation as compared with the Jin reference.

Claim 1 and its dependents were rejected based on the additional references of Winkler, Spanjers, and Nishi and the evidence asserting unexpected results does not compare to these other references.

Response to Applicant's Arguments:

14. Applicant's arguments filed August 7th, 2009 have been fully considered but they are not persuasive.

Applicants assert (p. 3, para 1) that Winkler does not teach the claimed Ti/Zr ratio, does not consider the elongation of alloys as a desirable physical property, and is rebutted by the declaration of Yusuke Toyoda purportedly showing criticality and unexpected results of the claimed Ti/Zr sum and ratio.

Applicants further assert (p. 3, para 2 to p. 4, para 3) that Spanjers fails to recognize and teaches away from controlling elemental composition to achieve superior elongation and is rebutted by the declaration of Yusuke Toyoda purportedly showing criticality and unexpected results of the claimed Ti/Zr sum and ratio.

In response, as stated before, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357,553 O.G. 177., 57 USPQ 1 17, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. In re Austin, et al. 149 USPQ 685,688. It would have been obvious to one of ordinary skill in the art to select alloy compositions fulfilling the claimed compositional relationships from the alloy compositional ranges disclosed by Winkler.

Evidence to the contrary would be, for example, criticality, unexpected results, or a teaching away, none of which have been demonstrated in the instant declaration as

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are discussed further below. Both Winkler's and Spanjers' alloys overlap each and every claimed range and thus the claimed alloys are "a composition described in the prior art" by optimization of ranges per MPEP 2144.05.

With respect to Winkler and Spanjers not teaching the instant application's elongation, elongation percentage is not present any of the instant claims.

With respect to a showing of criticality or unexpected results, as discussed above, the declaration under 1.132 only addressed the Jin reference and did not demonstrate unexpected results or criticality as compared to the other references applied, including Winkler and Spanjers.

Applicants assert (p. 4, para 4 to p. 5, para 6) that Nishi requires Ni, does not achieve the elongation disclosed in the instant application, and is rebutted by the declaration of Yusuke Toyoda purportedly showing criticality and unexpected results of the claimed Ti/Zr sum and ratio.

In response, Nishi is a case where the teachings of the prior art conflict in that the abstract discloses that Nishi's alloys may have 0 - 7 wt% Ni while the specification and claim 1 of Nishi's patent require Ni. In this case, the Examiner is persuaded by Applicants that Nishi does require Ni as far more evidence (specification, examples, and claim 1) points to Ni as a required element than as an optional element (only the Abstract). Thus the rejection of claims 10-12 under Nishi have been withdrawn as stated above.

With respect to a showing of criticality or unexpected results, as discussed above, the declaration under 1.132 only addressed the Jin reference and did not demonstrate unexpected results or criticality as compared to the other references applied, including Nishi.

Applicants' assertions (p. 5, para 7 to p. 6, para 4) with respect to Jin are moot in view of the withdrawal of the rejections over Jin.

Allowable Subject Matter

15. Claims 10-12 are allowed.

Reasons for Indicating Allowable Subject Matter

16. The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claims 10-12, the prima facie case of obviousness of these claims over Jin was rebutted by Applicant's affidavit demonstrating unexpectedly higher elongation percentages compared to Jin as explained in section 13 above.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

-- Claims 1-3 and 5-12 are finally rejected

-- No claims are allowed

The rejections above rely on the references for all the teachings expressed in the texts of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the texts of the references. To emphasize certain aspects of the prior art, only specific portions of the texts have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

All recited limitations in the instant claims have been met by the rejections as set forth above. Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121; 37 C.F.R. Part §41.37 (c)(1)(v); MPEP §714.02; and MPEP §2411.01(B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark L. Shevin whose telephone number is (571) 270-3588 and fax number is (571) 270-4588. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy M. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Mark L. Shevin/
Examiner, Art Unit 1793

November 9th, 2009
10-518,151

/George Wyszomierski/
Primary Examiner
Art Unit 1793